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12.000 (11/95)

FORM NO. DD6

UNIVERSITY OF CALIFORNIA, BERKELEY
BERKELEY, CA 94720

GEOMETRICAL PUZZLE

FOR

THE YOUNG.



BOSTON:

WM. CROSBY & H. P. NICHOLS,
111 Washington Street.

352

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151



PUZZLES TO TEACH GEOMETRY.

IN SEVENTEEN CARDS, NUMBERED FROM THE FIRST TO THE SEVENTEENTH INCLUSIVE.

WE have here given two hundred and four combinations of three isosceles right triangles; a simpler form of the Chinese tangram.

The value of these puzzles, in cultivating a geometrical taste and ability, has been acknowledged since the time of Archimedes, who is said to have invented a similar play; the Chinese tangram is, however, too difficult to interest beginners.

The present series of cards is intended chiefly for our common schools, as a more natural introduction to science than the abstract language of arithmetic. They are accompanied by triangular blocks of two sizes, from three of which, selected according to the line at the foot of the card, any of the combinations can be made.

The teacher may either introduce them as a regular exercise of the school, or use them as rewards of merit, — allowing those whose conduct deserves it to play with a card and three triangles. Questions may be asked, when the teacher has time and opportunity; — such as, How many corners, or angles, has this figure? Which of them are square, or right angles? Which acute? What part of a right angle is the acute angle? Which angles are obtuse? How many of the acute equal one obtuse? Which angles are concave, or indent the figure? To how many of the acute angles is this concave angle equal, measured on the outside? On the inside? How many diagonals can be drawn, or straight lines *through* the figure, from corner to corner? Which diagonal will divide the figure in equal halves? Will *any* line divide the figure in equal parts? that is, is it symmetrical? Will either of two or more lines? that is, is the figure symmetrical on more than one axis? If the figure has concave angles, lines can be drawn *outside* the figure, from corner to corner, or catagonals. How many catagonals can be drawn in this figure? Will a line perpendicular to any point in the catagonal be an axis of symmetry? If so, at what point? Is there more than one way of forming this figure, with the same triangles? Can you form, with the same triangles, a figure like this, except that the left side shall answer to the right of this, and the right to the left, or the top to the bottom, and the bottom to the top? &c., &c., &c.

The following are from gentlemen who have seen the manuscript.

FROM BENJAMIN PEIRCE, Perkins Professor of Astronomy and Mathematics in Harvard University.

"My dear Sir — I am quite pleased with your design of introducing the principle of the Chinese puzzle into the elementary schools, as a method of instructing young children in the practical analysis of forms. This puzzle has always seemed to me to be worth more than a mere amusement, and to be of considerable intellectual value in the development of geometrical ideas.

"Very sincerely and faithfully your friend,

"BENJAMIN PEIRCE."

FROM THOMAS SHERWIN, Principal of the English High School, Boston.

"I have just examined Rev. Mr. Hill's plates for geometry for alphabet schools, and I think that his plan will be productive of valuable instruction, as well as much harmless amusement.

"THOMAS SHERWIN."

The Puzzle has been introduced, by blackboard, into the Alphabet School of District No. IV., Waltham, and is highly prized by the teacher, a pupil of the Normal School, greatly esteemed wherever she has taught. It has also been approved by every teacher to whom the manuscript has been shown.

PUBLISHED BY WM. CROSBY AND H. P. NICHOLS, 111 WASHINGTON STREET, BOSTON.

Entered according to Act of Congress, in the year 1843, by T. HILL, in the Clerk's Office of the District Court of the District of Massachusetts.

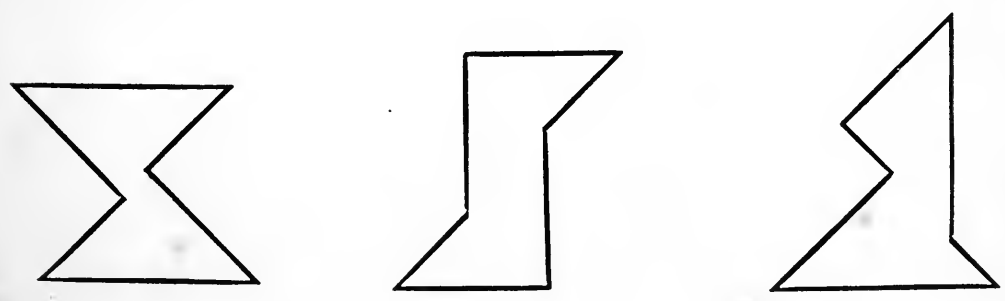
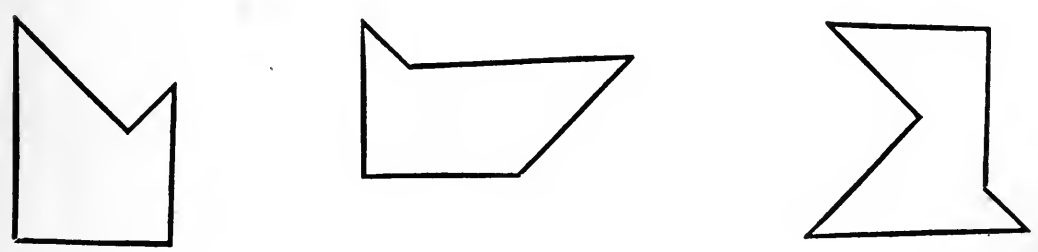
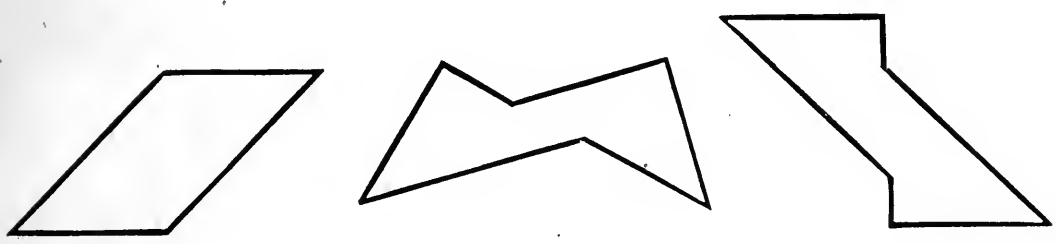
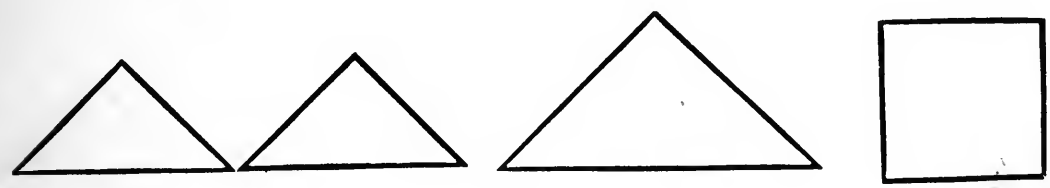
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PUZZLES TO TEACH GEOMETRY.

First Card.



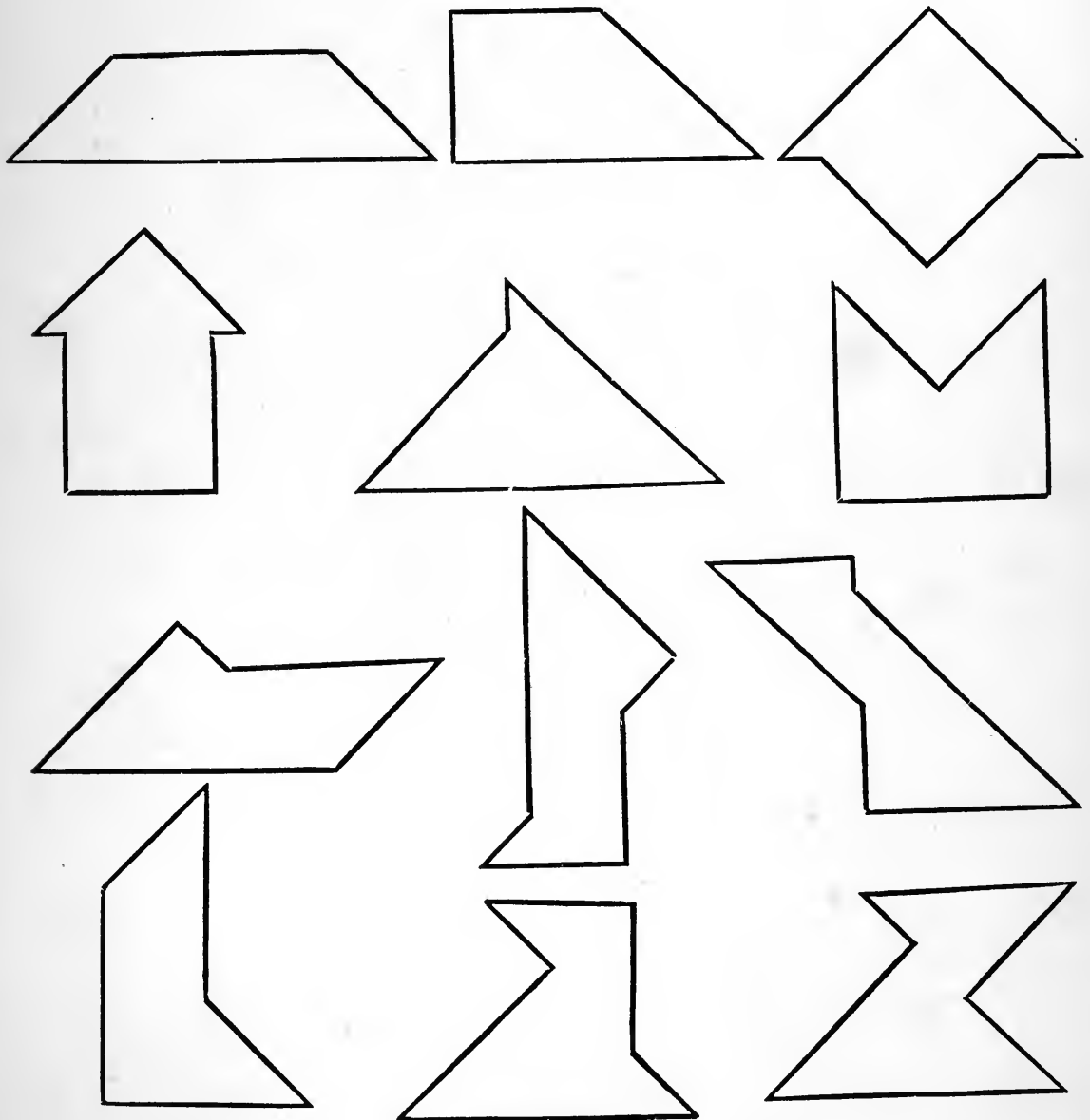
Two Triangles of equal size.

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PUZZLES TO TEACH GEOMETRY.

Second Card.



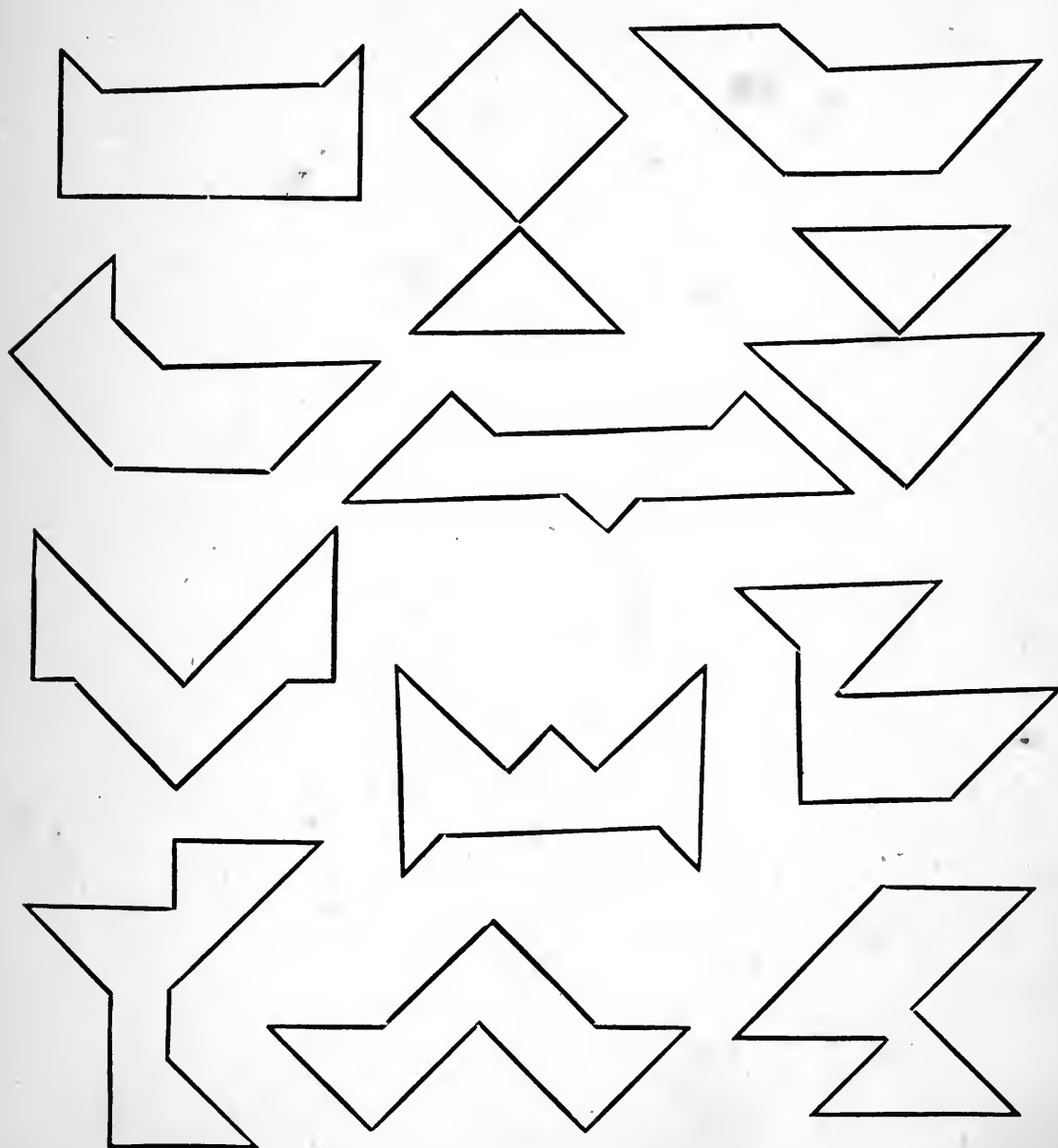
Three Triangles of equal size.

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Third Card.



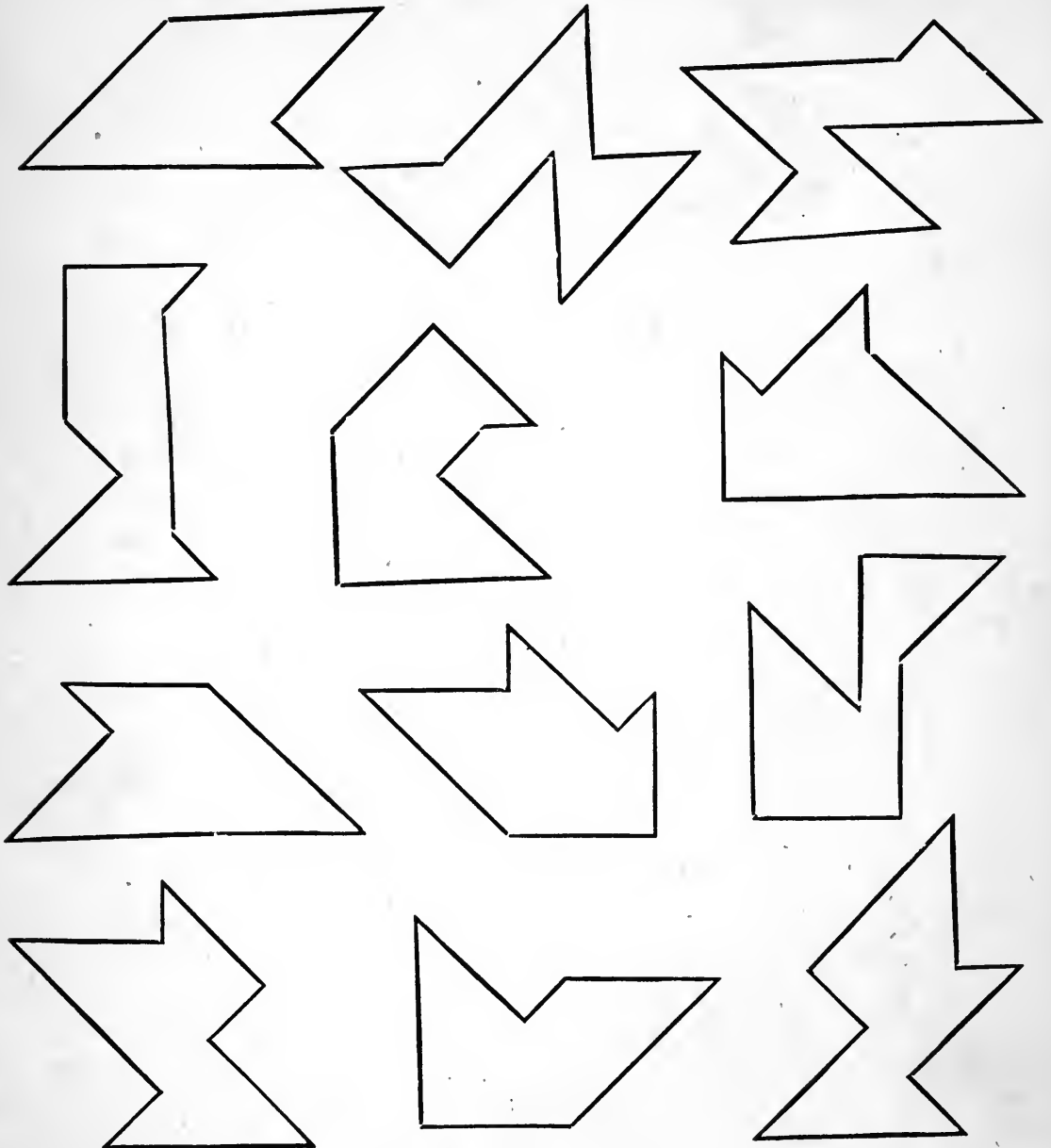
Three Triangles of equal size.

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Fourth Card.



Three Triangles of equal size.

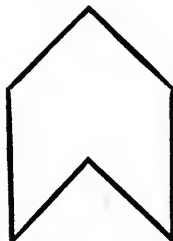
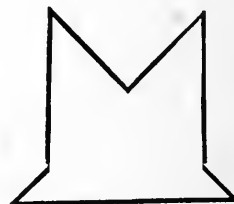
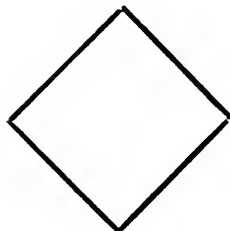
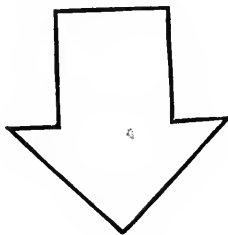
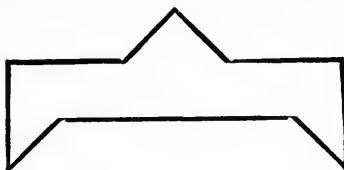
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PUZZLES TO TEACH GEOMETRY.

Fifth Card.



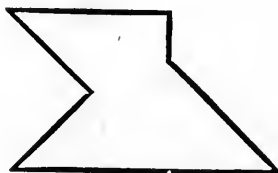
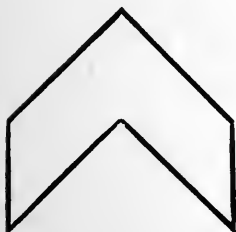
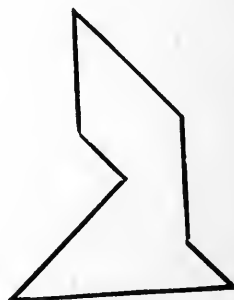
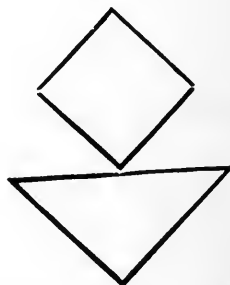
One large and two small Triangles.

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PUZZLES TO TEACH GEOMETRY.

Sixth Card.



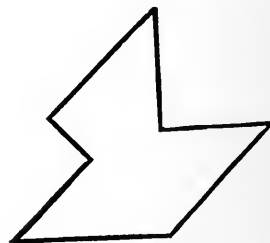
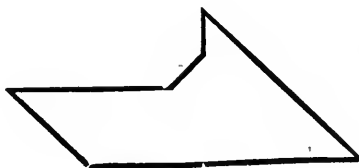
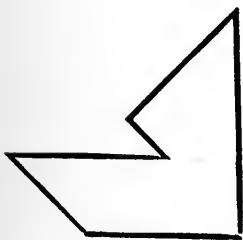
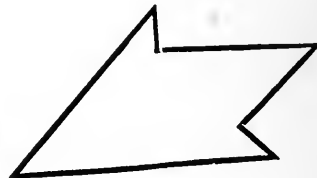
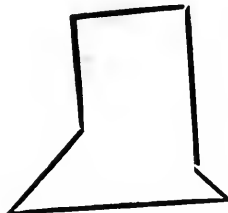
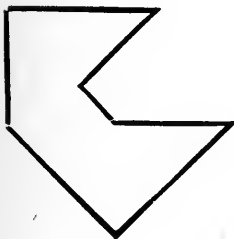
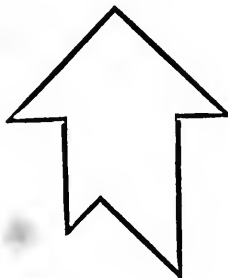
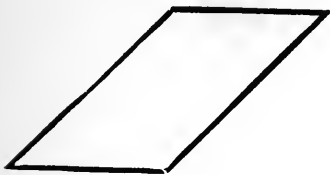
One large and two small Triangles.

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PUZZLES TO TEACH GEOMETRY.

Seventh Card.



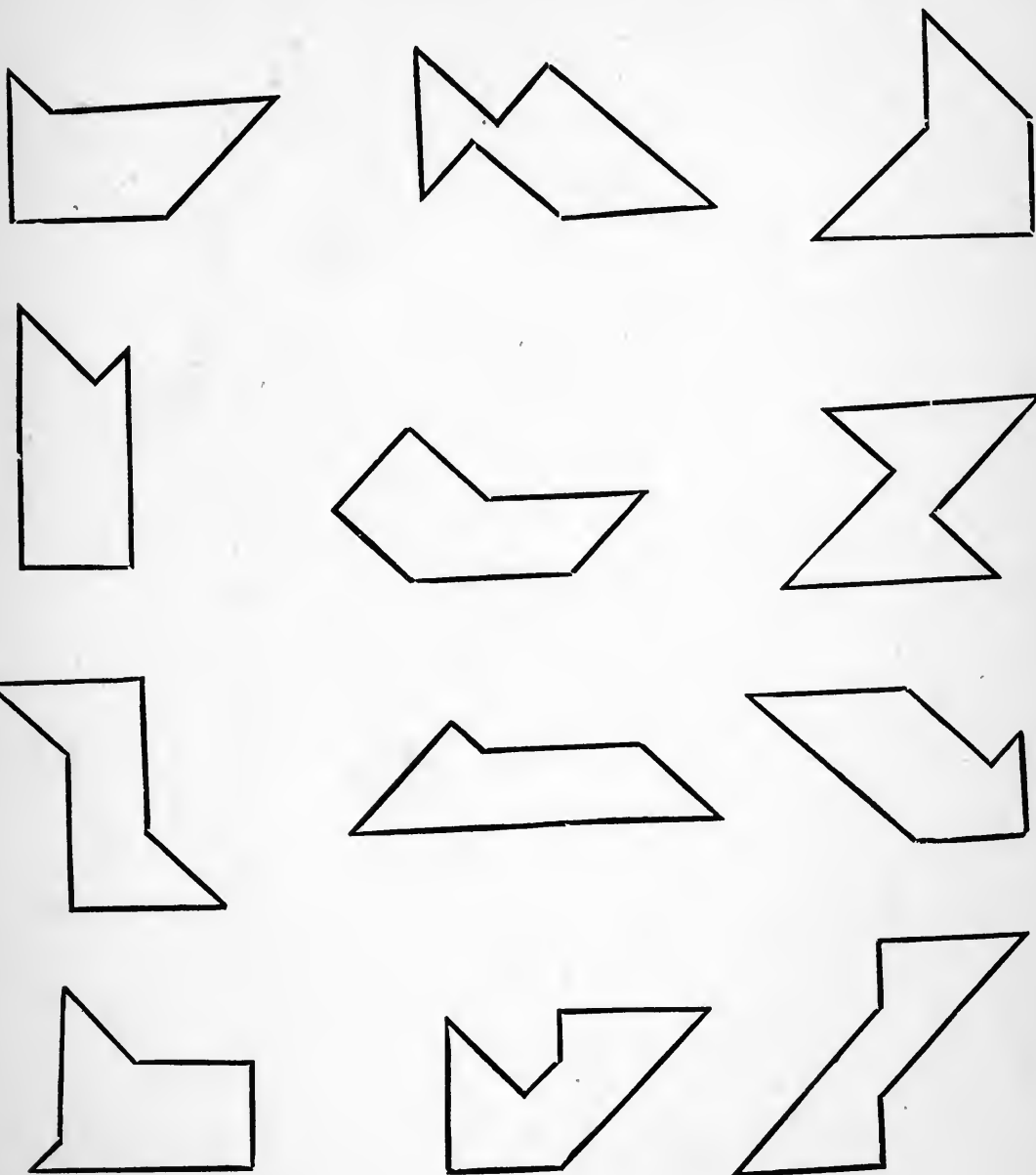
One large and two small Triangles.

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Eighth Card.



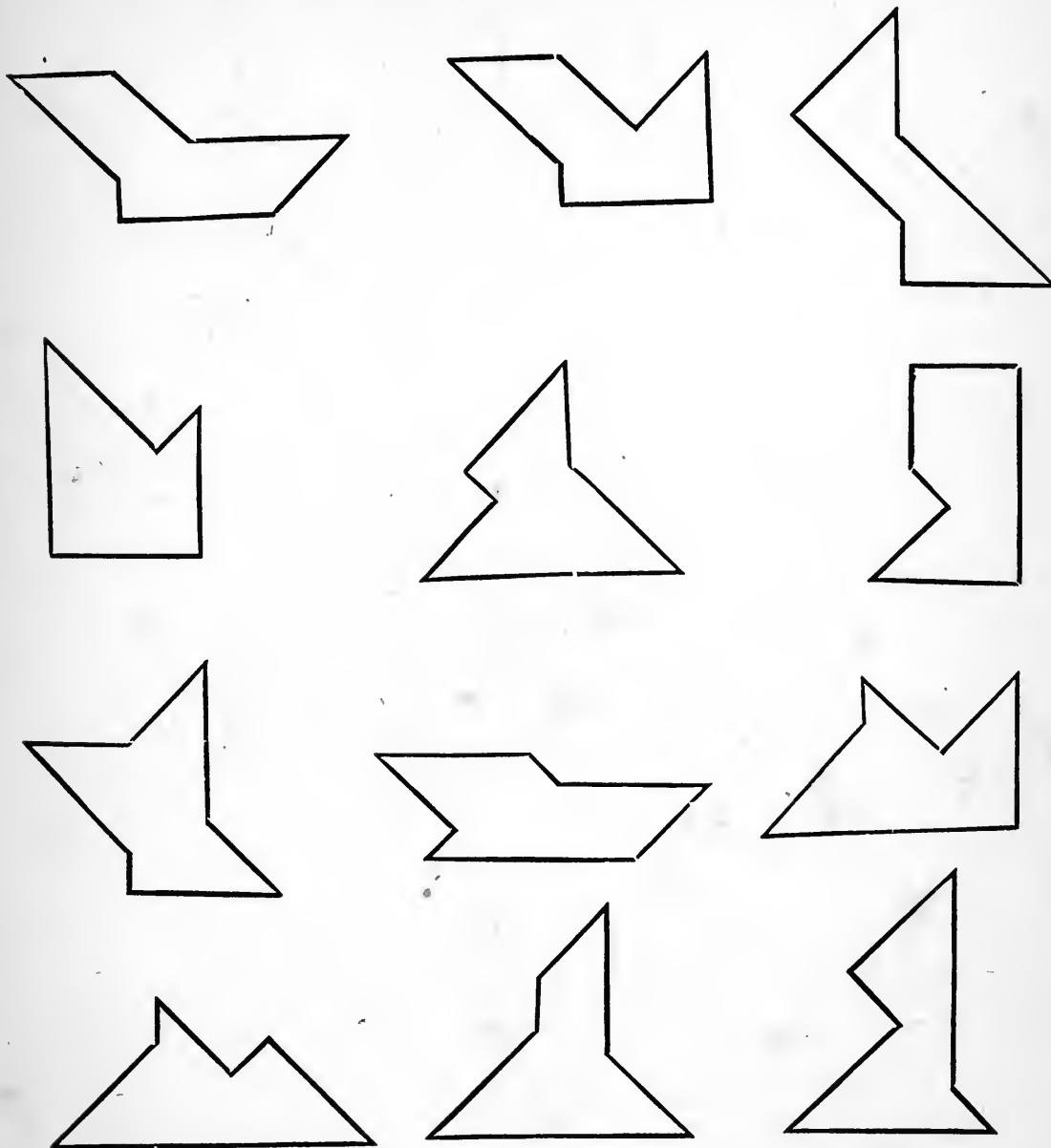
One large and two small Triangles.

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PUZZLES TO TEACH GEOMETRY.

Ninth Card.

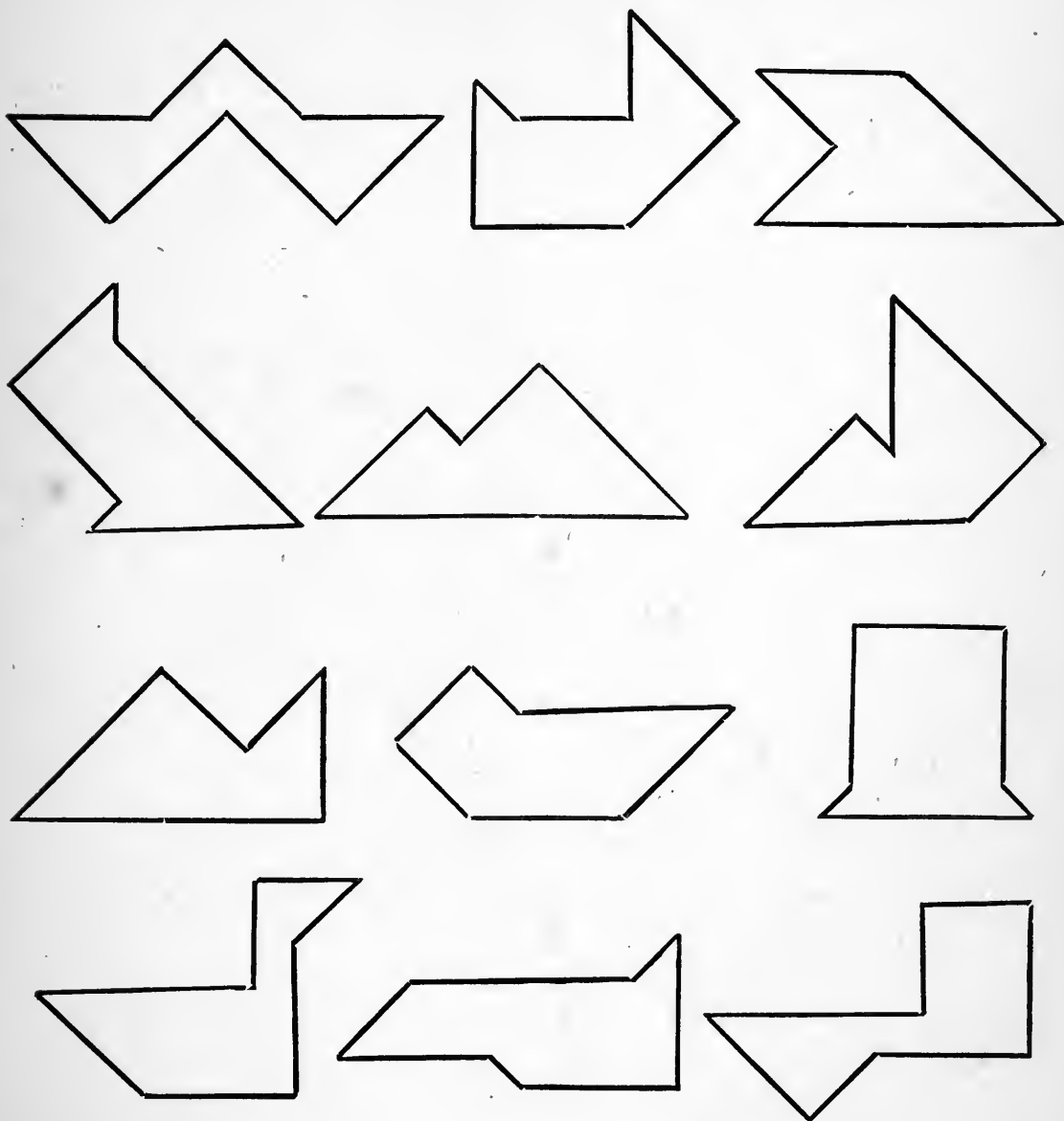


One large and two small Triangles.

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PUZZLES TO TEACH GEOMETRY.

Tenth Card.



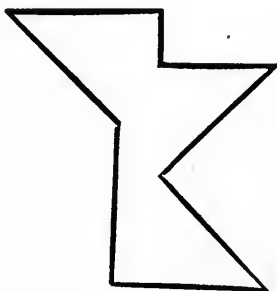
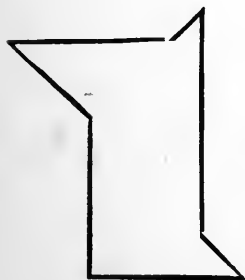
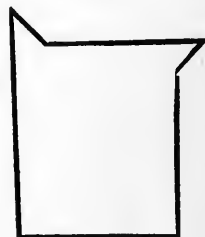
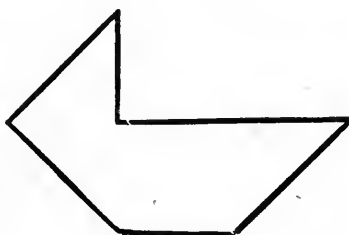
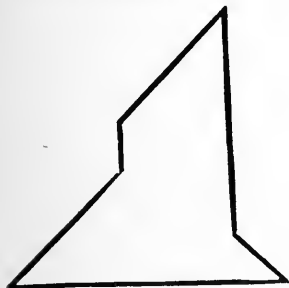
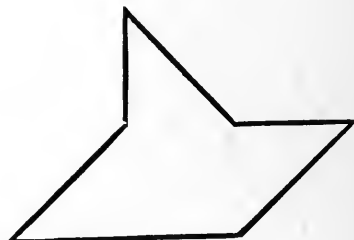
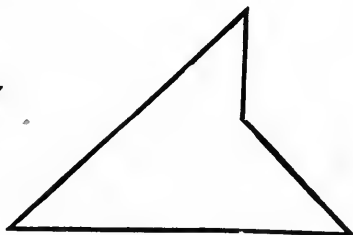
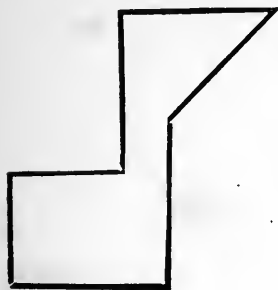
Two large and one small Triangle.

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Eleventh Card.



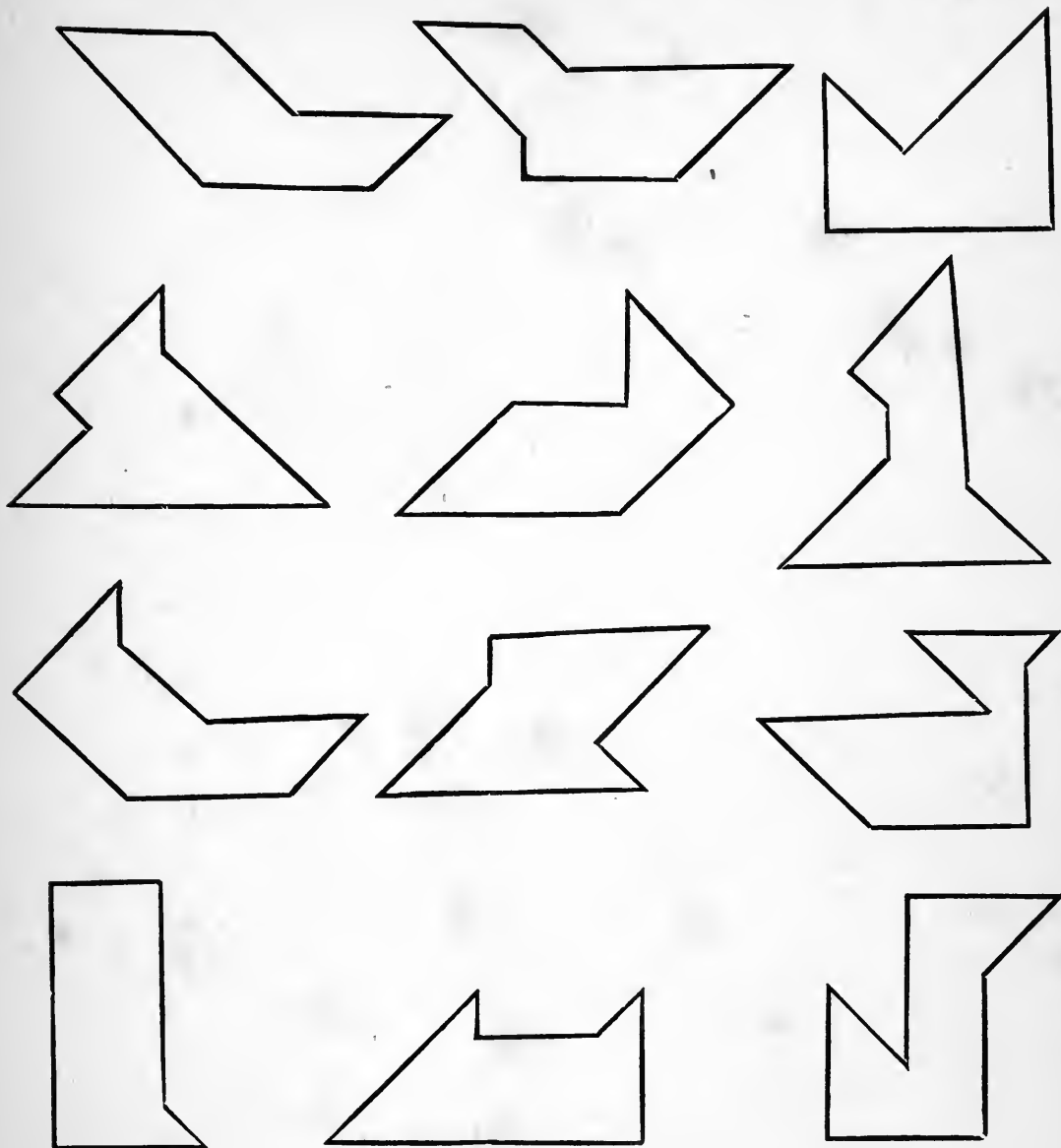
Two large and one small Triangle.

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PUZZLES TO TEACH GEOMETRY.

Twelfth Card.



Two large and one small Triangle.

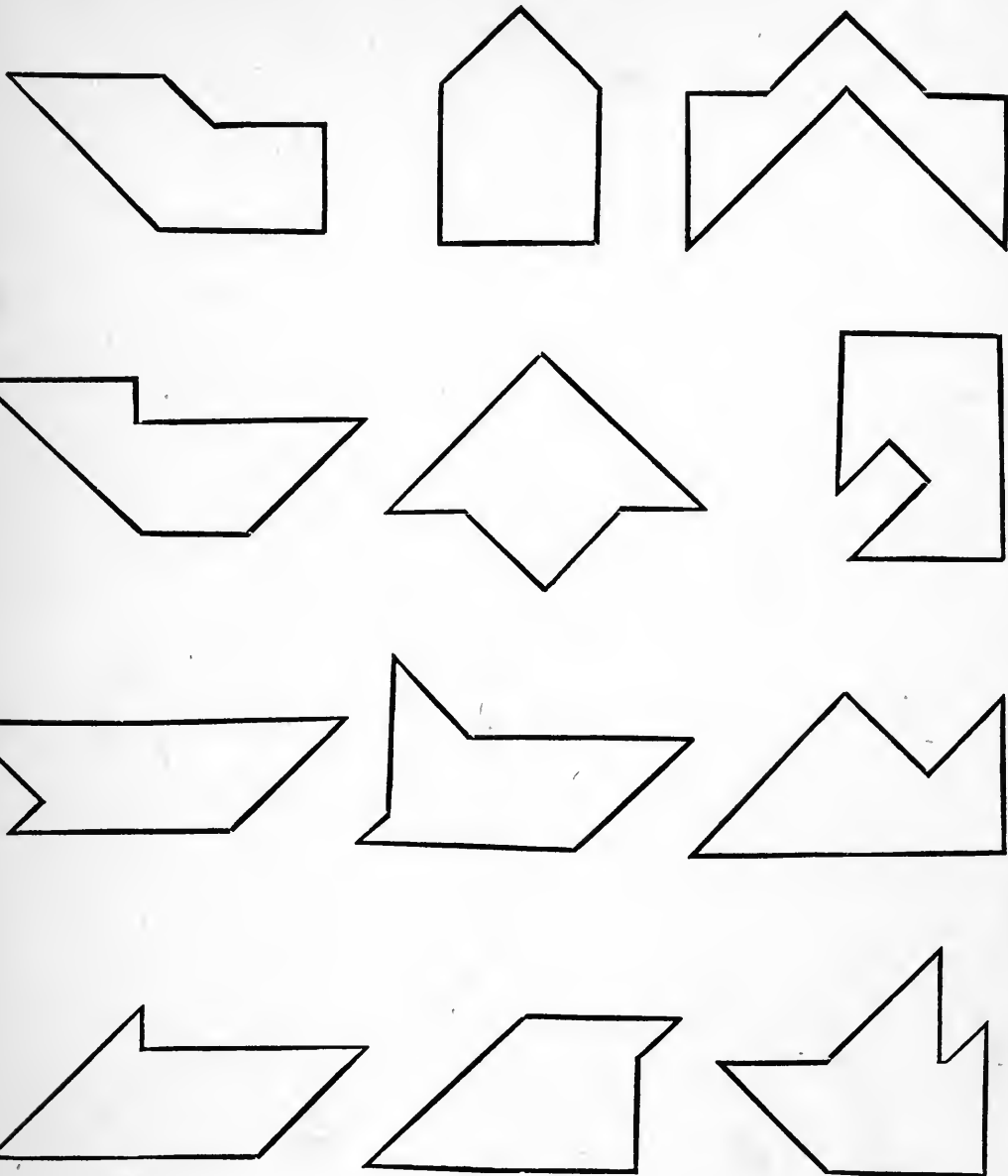
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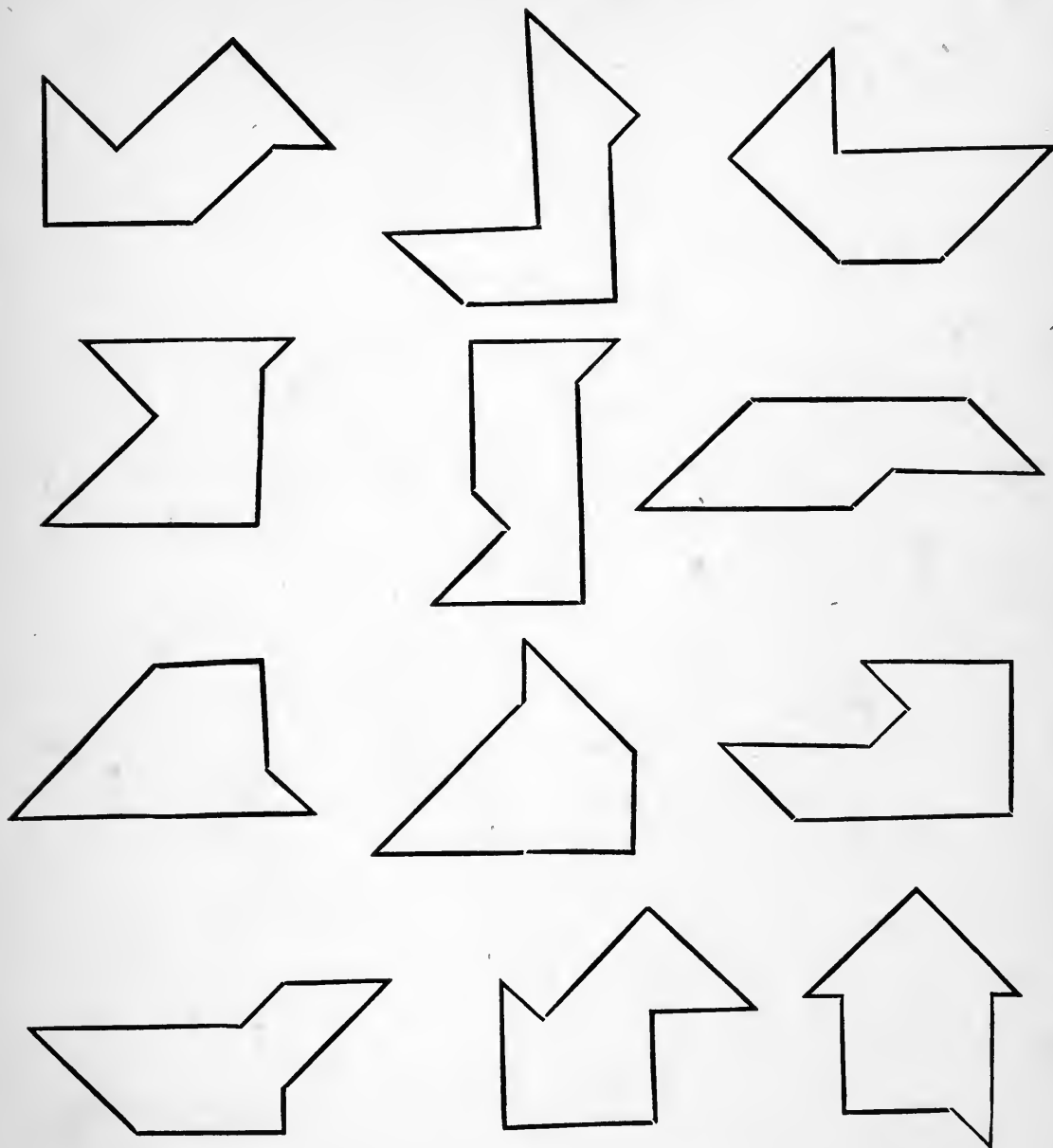
Thirteenth Card.



Two large and one small Triangle.

PUZZLES TO TEACH GEOMETRY.

Fourteenth Card.

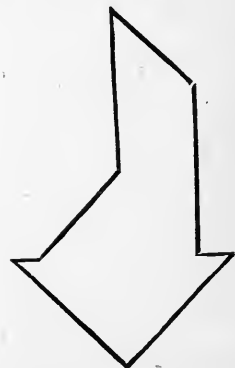
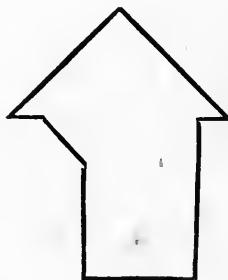
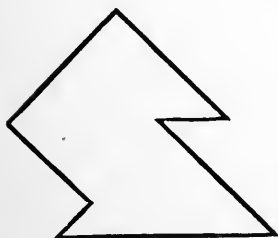
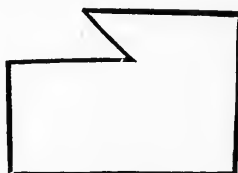
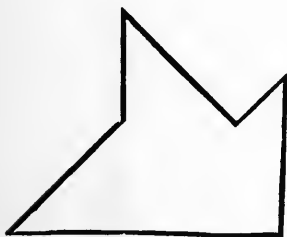
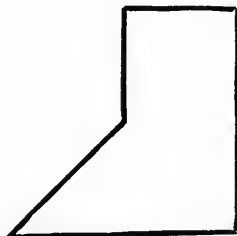
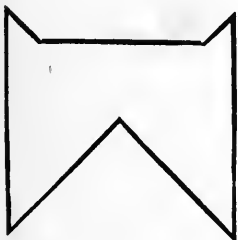
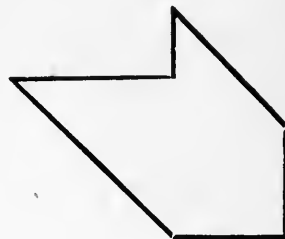
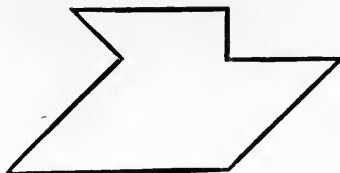


Two large and one small Triangle.

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PUZZLES TO TEACH GEOMETRY.
Fifteenth Card.

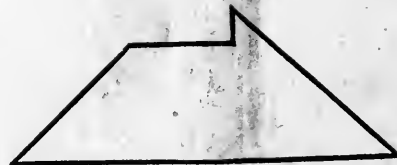
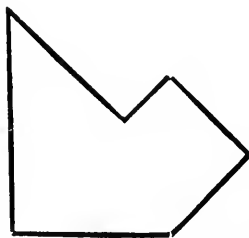
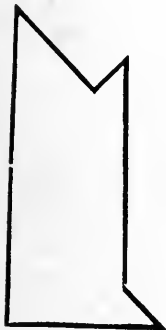
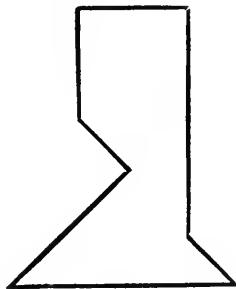
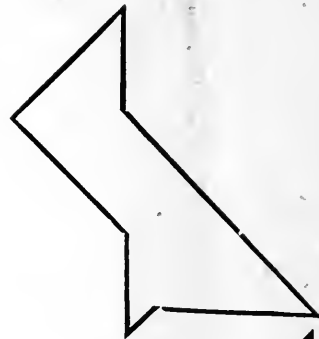
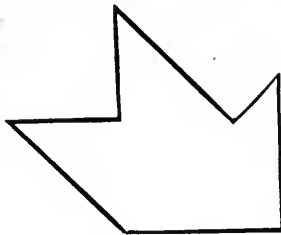
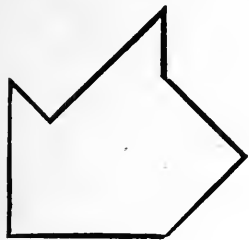


Two large and one small Triangle.

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PUZZLES TO TEACH GEOMETRY.

Sixteenth Card.

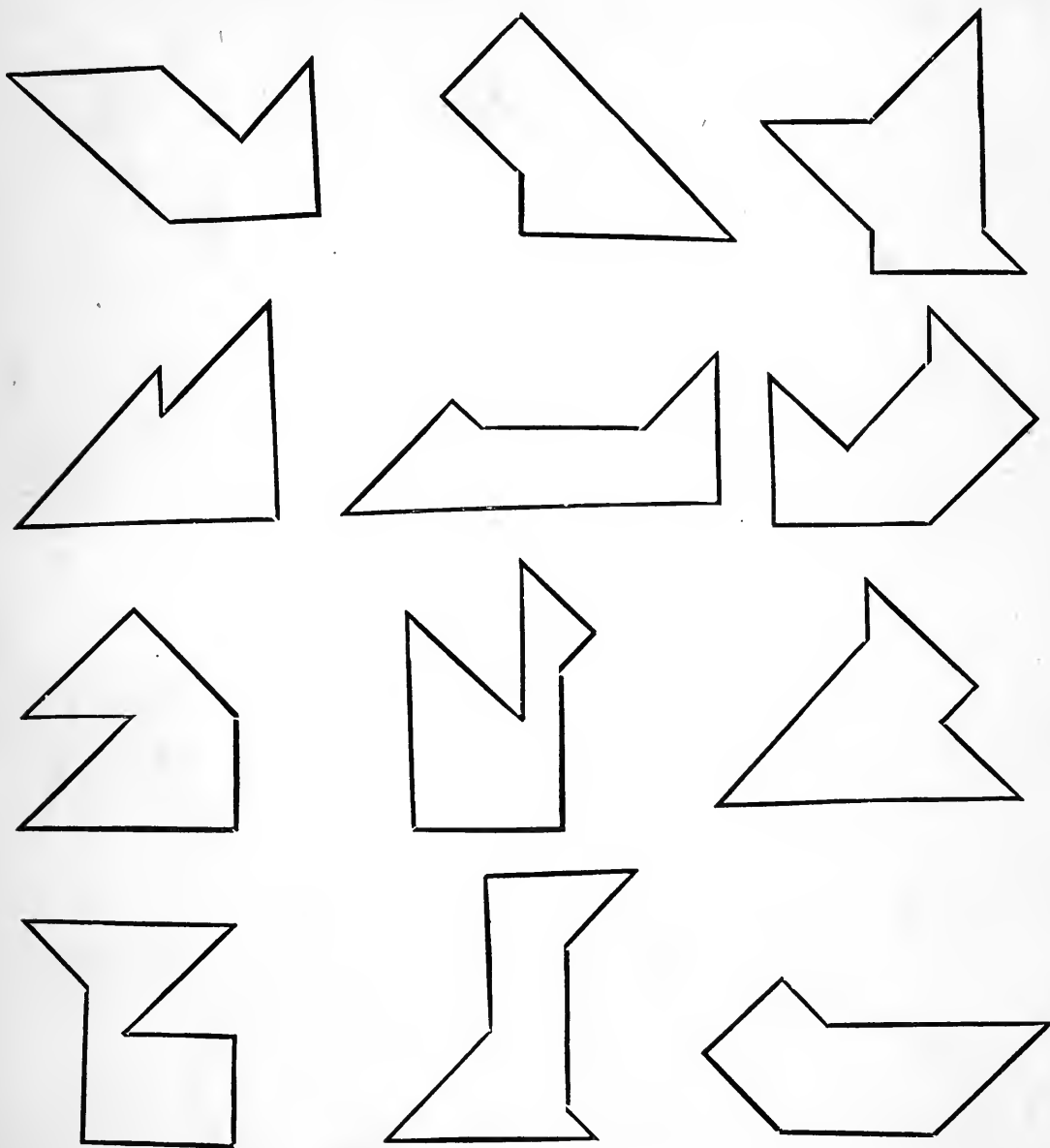


Two large and one small Triangle.

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PUZZLES TO TEACH GEOMETRY.
Seventeenth Card.



Two large and one small Triangle.

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